

HERPINSTANCE



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EDITORIAL

Long, long ago, 1976 to be exact, *Hamadryad* was born as the newsletter of the Madras Snake Park. This slightly smudged cyclostyled bulletin, earnestly compiled, typed and edited by Zai Whitaker – chockfull of herp-related news clips, herp survey reports and news from the Snake Park and the Croc bank – was eagerly awaited by the small herp community in India and by a wider audience abroad! Later, from 1985, this newsletter was being produced by the Madras Crocodile Bank, edited by Indraneil, Romaine, Harry and the author. *Hamadryad* evolved into a scientific journal during its tenure with the Madras Crocodile Bank in 1990. While the science buffs were pleased with India's first real herp journal, a chunk of the readership was left behind. Many people mourned the loss of the sometimes funny, witty and even poignant articles in the old newsletter.

Back in the good ol' days you could count on seeing a long winded excerpt from one of Rom's "Letters from the dark unknown"; or Satish Bhaskar, Mr. Sea Turtle, would give us the latest on turtles of Lakshadweep. And then we had correspondents from far-flung Burma, Pakistan, Sri Lanka and Nepal. This was the start of the pop herp movement in our niche of the woods – so rich in herpetofauna but with so few people working or studying the critters. Just to give you an idea of the content and variety of India's first herp newsletter, here are some of the notes and articles from the 1970s: Mugger in drought; India's paradise islands; Introducing the Irulas; Notes on the spiny-tailed lizard; First snakebite seminar in India; Herp survey in the Andamans; Freshwater turtles: the drug trade.

Well, it's been a while, but the Croc Bank Trustees have decreed that the newsletter is to be resurrected, and I'm all for it! Here's a chance for everyone out there to send in notes of frog, toad, croc, snake, lizard or turtle interest, herp related clippings from regional newspapers and magazines – anything from around South Asia will be welcome.

Herpetology (snakes in particular) has a large following in India these days. For example, most large cities now have snake rescue services and there are about a dozen snake parks around the country. Both snake rescue and the maintenance standards at snake parks need to be looked at more carefully and a reasonable protocol arrived at for both activities. I know of king cobras "rescued" by using crude nooses, and snakes kept in filthy cages. Sure, snake rescue is a vital service that helps people lose their irrational fear, but let's do it right for chrissake! Snake Parks (Reptiles Houses in zoos too) do perform an all-important educational service, but there are good ways to keep snakes and there are bad ways. The Centre for Herpetology should start a simple but comprehensive course on maintaining reptiles in captivity, the right way.

Since herpetology is getting to be so popular in India it definitely needs a forum for people to exchange ideas, get advice and learn more. Electronically there are a number of international fora for herp enthusiasts such as kingsnake.com and HISASIA@yahoogroups.com. Here's hoping that *Herpinstance* will bring people together in pursuit of subjects as diverse (and yet linked) as snakebite, lizard behaviour, croc tunneling, the sea turtle situation and the latest laws protecting herps.

But the success of the newsletter depends on you. Sharpen up that pencil (or switch on the computer) and send in the note on a record clutch of cobra eggs, the croc that came to town or snakebite stats from your local hospital. Get a friend to subscribe, spread the word!

Rom Whitaker
Founder
Croc Bank



NEWS FROM THE CROC BANK

Never in my wildest dreams did I imagine that I would be working with herps. A whole new world opened up to me when I set foot in the Croc Bank. I had always maintained a safe distance from snakes (I never had to make friends with crocs or other herps in the past) and to be honest when this offer to work in the largest reptile park in India came my way, I was a bit hesitant. Once I landed here and saw the crocs and the people associated with them, I knew I could handle it. A year has passed by and now I can say that I have not only lost my fear of these animals but I have also begun to develop a strong liking for these little known and misunderstood animals.

Captive Breeding News

A first time for India, last year, our American alligator (*Alligator mississippiensis*) laid a clutch of 11 eggs of which five were fertile. Four of these had an early embryonic death and one egg went through full term to hatch and this hatchling is now growing fast. This year one of our female Nile croc (*C. niloticus*) laid 25 fertile eggs for the first time.

Kachuga kachuga laid eggs last year during April 2002 and this year another female laid eggs during mid March. This is the first record of this species breeding in captivity.

That the species, *Aspideretes gangeticus* has a sperm storage capacity of fifteen years or more has been proved by a female laying a clutch of fertile eggs for the 15th consecutive year without any male being around. I Das first reported this during the sixth year of laying fertile clutches, H. Andrews and R. Whitaker reported it in the 8th year and N. Whitaker in the 12th.

Reptile exchanges, loans and transfers

From the time we sent a pair of gharials (*Gavialis gangeticus*) to Surat Zoo in March 2002, there has been a steady traffic of reptiles from the Croc Bank to other zoos. We have sent the National Zoological Park, New Delhi, a pair of American alligators (*Alligator mississippiensis*), two pairs of Caimans (*Caiman crocodylus crocodylus*) and two pairs of Siamese crocodiles (*C. siamensis*).

The Arignar Anna Zoological Park, Chennai, were handed a male *Alligator mississippiensis*, one male *C. niloticus*, two pairs of *C. siamensis* and two pairs of *C. moreletti*. Another large batch was sent off, during April this year, to the Surat Zoo. These include 20 *Caiman crocodylus crocodylus*, two female *G. gangeticus*, two female *C. porosus* and four pairs of *C. siamensis*. We also sent a pair of King Cobras (*Ophiophagus hannah*) and a female *G. gangeticus*, to the National Zoological Park, Sri Lanka in May this year; in exchange for a pair of albino cobras, which we hope will prove to be big crowd pullers. A pair of green iguanas (*Iguana iguana*) has been given to Chennai Snake Park on a breeding loan.

Environmental Education

Croc Bank received an environmental education grant from Ford India Ltd, Chennai, last year and that set off a series of activities. The educational team spearheaded by the Croc Bank's EE Coordinator, Bhanumathi and the EE Officer, Gowri Shankar, set up nature clubs in 20 village schools around the vicinity of the Croc Bank and regular visits to these schools were made by them. An 'Eco Study Centre' was set up at the Croc Bank as part of the Ford education programme. With the aid of a large T.V., VCR, overhead projectors, slide projectors purchased with the grant money. Numerous programmes and summer camps for school children are being conducted at the Croc Bank. Mobile exhibitions were conducted for fishing villages that dot the east coast, north and south of Croc Bank, during the olive ridley nesting season. The Croc Bank produces a monthly newsletter for schools in Tamil and English.



Personnel

Three volunteers have joined the Croc Bank, Anuja Sharma, Seema Mundoli and Prema Naraynen. They are employed in the city but come and help out at the Croc Bank on weekends. Starting with early morning pit cleaning, they help with MCBT publications, the EE programme, Croc Bank library and join in all the activities here. They are also involved in, and are the main coordinators for the launch of *Nature Quest*, our city centre in Chennai.

Sharath Nambiar
Administrative Officer
Croc Bank

MULTI PUPPET THEATRE AT THE CROC BANK

Puppetry is one of the most ancient forms of entertainment in the world and traditionally India has a rich heritage of puppetry. The early puppet shows in India dealt mostly with history—the stories of kings and political satire. Religious portrayals in puppetry developed in South India with shadow puppets performing stories from the *Ramayana* and *Mahabharata*. Apart from these religious themes, Indian puppetry also conveys the moral messages from *Panchatantra* and other mythological and historical collections.

Today, traditional puppet theatres have lost their popularity with the onslaught of cinema, television, video and CDs. However, in its adapted form, this media is still popular with children, educators and communicators. Over the years, puppetry has developed into a powerful medium for conveying concepts, themes, and messages related to any subject including environment. Puppetry offers a real challenge to the imagination and creative ability of the individual. Of all art mediums, puppetry is probably the least restricted in its form, design, colour and movement and the least expensive of all animated visual art forms.

Role of Puppetry in Environmental Education

Puppetry is an important communication tool for conveying concepts and themes related to the environment. Awareness about our environment, the depiction of various concepts such as air, soil, water and animals, the need for conservation appreciation of nature can be comprehended easily through the use of puppetry.

The multi puppet theatre in the Croc Bank is the first of its kind in India with respect to a nature care centre. It was constructed with the help of Croc Bank staff along with people from the surrounding villages. The outside structure is made of eco-friendly dried palmyra and coconut leaves that are secured with casuarina poles which also forms the skeleton for the entire structure. An audio system and lights for the stage have been installed. A few traditional puppets are on display with information.



The aims of the theatre are:

- to increase knowledge and create an awareness of and interest in the environment among students, teachers and the general public who visit the Crocodile Bank.
- to teach the students & teachers the art of making and handling puppets for the purpose of creating environmental awareness.
- to explain how to create puppets out of locally available material.

Activities of the Theatre:

- Regular productions based on specific themes like conservation of wildlife, trees, pollution, sustainable living, web of life and biodiversity conservation.
- Workshops for students, teachers and workers in NGOs on how to 'create awareness through puppets.'
- Interaction with traditional & contemporary puppeteers and specialists in the field in order to gain more information and improve the existing productions.

R. Bhanumathi
EE Coordinator
Croc Bank

RESEARCH IN THE ANDAMANS AND NICOBARS

We, the present Croc Bank community, have been interested in the Andaman and Nicobar Islands, in the Bay of Bengal, for over thirty years. The eco-tapestry of tropical moist forest, mangrove swamps, long, uninhabited beaches, remote hill streams and coral reefs are a naturalist's paradise. This is especially so for the lucky herpetologist based in this part of the world. The archipelago of over 500 islands, islets and rocky outcrops has, for example, over 40 species of endemic herpetofauna and practically every serious survey turns up new species and new records. The Croc Bank studies there have recorded several new species, new records and new distribution data.

Until 1989, studies and surveys were undertaken on an informal and "science only" basis. The first crocodile surveys revealed the dismal situation of the saltie, and appeals were sent to the government to curtail poaching and the large-scale habitat destruction caused by the huge annual influx of new settlers from mainland India. Thousands of acres of prime forest had been cleared for cultivation, coral was being mined for road construction, the timber industry was controlled by powerful and unscrupulous dons, and poaching and trade in edible nests, "protected" shells, and marine animals like holothuria and sharks was rife and rampant. Every visit was a stomach-turner; more of the forest gone, more construction and development, more unrestricted plundering of resources. Then, there was the other horror story about what was happening to the five groups of indigenous people: anthropologists all over the world were concerned and dismayed. The Jarawa, Onge, Sentinalese, Andamanese and Shompens all share the same history: they thrived when they were left alone in their forest homes. With the then-British Indian settlements and their resulting encroachments into their reserves, numbers plummeted to unsustainable levels.

It was time to try and do something beyond lamenting the fate of the islands. So, in 1989, ANET was formed: the Andaman and Nicobar Islands Environment Team. Its agenda: surveys and research on the terrestrial and marine fauna and flora, conservation strategies and action, and awareness building and education. Its base in Wandoor, south of Port Blair, is manned by jolly Karens, (Burmese), who were once hunters. School children from all over the islands visit it to learn about their beautiful and fragile heritage. ANET has conducted, sponsored and supported studies on crocodiles, sea turtles, other herpetofauna, alternative eco-development options, tourism, coral reef related socio economic studies, the shark fin industry, the islands' bats, and the present situation and needs of the indigenous tribes, besides drawing up protected area management plans. ANET has a comprehensive library of books, papers and reports on the Islands, and is regularly approached for advice by the government on conservation interventions.

Zai Whitaker
Croc Bank

AWARDED

Bandana Aul, one of our researchers, has been awarded the BP conservation programme award, for her bat project in the Nicobar Islands. The BP awards are through Birdlife International, UK and Fauna & Flora International (FFI) UK, who are assisting the increasing number of student project teams eager for help with high priority conservation field projects. In existence since 1985, the BP Conservation Programme support and encourage long term conservation projects, which address global conservation priorities at a local level. It is about attracting, supporting, and developing the skills and networks of future generations of young conservation professionals. This is achieved through a comprehensive system of support, training and financial awards.

CONSERVATION OF THE OLIVE RIDLEY TURTLE IN MADRAS: THIRTY YEARS AND COUNTING

Kartik Shanker

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It seems like there is renewed interest in sea turtles this year in Madras. The newspapers have been full of the olive ridleys, which migrate to the beaches of Chennai each year (as they do throughout the east coast of India) to nest. They have lamented the death of the ridleys, most often drowned in trawl fishing nets, and eulogised the many groups working towards their conservation.

None of this should be surprising. After all, Madras is in some sense the birthplace of sea turtle conservation in India. In 1972, a group of dedicated wildlife enthusiasts, nature lovers and beach bums started walking the beaches of Madras to document the status and threats to olive ridley turtles. Among these were Rom Whitaker, founder of Madras Snake Park Trust and the Madras Crocodile Bank Trust, and Satish Bhaskar, who walked thousands of kilometres, including most of India's beaches, mainland and islands, in search of sea turtles. Curiously enough, the 'other' sea turtle conservation and research program in India got started at about the same time. Though locals had been exploiting the eggs at Gahirmatha for many decades, the presence of a mass nesting beach was not known to science till J.C. Daniel and S.A. Hussain of the Bombay Natural History Society indicated its presence in 1973. The following year, H.R. Bustard, an FAO Croc consultant was conducting a crocodile survey in Bhitarkanika, when he 'discovered' the mass nesting rookery in Gahirmatha and declared it as the 'world's largest'. Subsequently, a conservation and research program was initiated by the Orissa Forest Department.

In Madras, the Madras Crocodile Bank Trust started sea turtle conservation, maintaining a hatchery where eggs were relocated (about 200 nests were collected in 4 years). In 1977, the Central Marine Fisheries Research Institute (CMFRI) became involved and established a hatchery for research at Kovalam. They purchased eggs for their research program and maintained the hatchery till the early 1980s. From 1982 to 1988, the Tamil Nadu Forest Department maintained several hatcheries along the Tamil Nadu coast, three near Madras and two near Nagapattinam.

In the 1980s, 'turtle walks' gained in popularity, and were organised mainly by the World Wide Fund for Nature, but also by a number of other smaller groups. Often, the groups would collect eggs during their walks and relocate them at the Forest Department's hatcheries. Some of these 'walkers' were in the prime of their youthful enthusiasm (or foolishness) when the Forest Department decided to close down their hatcheries in 1988. Two of them, Tito Chandy and Arif Razak, decided that the sea turtle conservation program in Madras should be continued. They were soon to be joined by Tharani Selvam, Yohan Thiruchelvam and the author. Since then turtle conservation in Chennai has been synonymous with the 'Students Sea Turtle Conservation Network' (SSTCN). Every season, this group establishes a hatchery at Nilankarai, and each night from end-December to mid-March, the stretch from Besant Nagar to Nilankarai is patrolled. Some years, when there were enough volunteers, the patrolling extended 5 - 10 km beyond Nilankarai. Hatchlings are released from February to April, and the nests are excavated to account for hatching success. Every weekend during the season, public and students from Madras accompany the SSTCN on the turtle walks and are educated about sea turtles and conservation.

One fairly remarkable aspect of the SSTCN is that it has never been 'run' by anyone but students. While a few senior members have advised, the group has always passed on the mantle from one generation of students to the next. Though these students have come from various schools and colleges, and the whole transition process has been informal to the point of being chaotic, the organisation has survived, which shows how powerful an idea can be once it has taken root. What makes the SSTCN's program such a good thing? Many have asked about the point of releasing a few thousand

hatchlings, when the problems that face them are seemingly insurmountable. The answer to that lies in viewing the program as an outreach program rather than a conservation one. Thousands of people have been on a turtle walk, many have seen hatchlings, which are indisputably amongst the most charismatic ambassadors of conservation, and a few have had the fortune of seeing a nesting olive ridley. Apart from the weekend participants, many core members have been motivated to pursue careers in ecology, wildlife and conservation.

One of SSTCN's 'failures', if it can be called that, was the attempt to involve local fishing communities in sea turtle conservation. In the mid 1990s, an attempt was made to start in-situ conservation, where a certain proportion of nests would be left on site. This was to be coupled with education and awareness programmes for the youth from the fishing villages, but the programme did not take off. This has been rectified during the last season by the efforts of the Madras Crocodile Bank Trust and TRust for Environmental Education, who have involved the youth and the villagers from fishing villages in sea turtle conservation near their villages. The youth are involved in patrolling and monitoring their beaches, protecting the nest on site and relocation of endangered nests. They are spreading conservation awareness within fishing communities through talks, mobile exhibitions, turtle walks and camps.

Olive ridley turtles still face innumerable threats on the east coast of India. Habitat degradation, artificial illumination and massive incidental by-catch are major threats all along the coast. In Orissa, more than ten thousand turtles die each year, drowned in fishing gear. Much of this can be avoided by the use of Turtle Excluder Devices (TEDS), which are mandatory in that state. The Tamil Nadu Government has proposed the amendment of the Tamil Nadu Marine Regulation Act 1983 to deal with the devastation that has been wreaked by large mechanised trawlers along the coast here. The proposed amendments would bring in regulations regarding the size of the fishing nets and the dimensions of the holes, apart from making TEDS mandatory for all deep sea fishing vessels. It will also prohibit the indiscriminate dumping of juvenile fish on the shore by the trawlers when they dispose the day's catch.

However, as the Orissa example clearly shows, the establishment of laws is not nearly enough. There, the polarisation between trawler owners and conservationists has prevented meaningful dialogue and obstructed the use of TEDS. As a counter example, TEDs have recently been successfully introduced in Andhra Pradesh where the implementation was coupled extensively with workshops and awareness programs. Hence, education and awareness and, involvement of local communities will play a major role in the success of conservation efforts. It is in this area that progress has been made in Chennai. Recently, conservation programs have sprung up in Goa, Kerala, Maharashtra, Andhra Pradesh and the Andaman and Nicobar Islands. A broad network for marine conservation, responsible fisheries and coastal development will serve both the cause of sea turtles as well as other marine life.



KONGHUEVEH TEH PAYUH¹

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The island of Little Nicobar is located south within the Nicobar archipelago and the closest large island is the Great Nicobar Island, the southern-most island². The other smaller inhabited islands are Pulumilo and Kondul and are part of the southern group of the Nicobar group of islands (Fig:1). The purpose of the study was resource use by the Little Nicobar native islanders, notably their mix systems of horticulture, hunting, fishing and gathering other resources for survival. The cash economy is restricted to produce such as copra and dried betel nut that are sold or bartered and this money is used to buy supplementary food articles, besides household goods, clothes and products that are not produced locally. Foods that are found locally include a wide variety of fish and other marine life from the sea, coconuts from their plantations, pandanus fruit, a few tubers, birds, monitor lizard and wild pig from the forest.

The salt water crocodile is a seasonal food source used by a few of the men who are skilled hunters and well acquainted with the intricate labyrinth of forest streams, creeks, hills and valleys that are part of the forest ecosystem on the island. These select hunters are few and capture seasonal game for food. Those acquainted with crocodile hunting are restricted to a few hamlets situated close to large creeks. Although hunting is not permitted for the rest of India, these indigenous islanders are exempt from the schedules of the Indian Wildlife Act (1972) and are allowed to hunt wildlife for food. Up to 1995 there was tremendous pressure on crocodiles from poachers from Thailand who used to take back live animals, skins and processed meat for sale. Though such activities have occurred in the recent past, now crocodile hunting is by the local inhabitants.

During my visit this year most of my time was spent along the west coast where various resource gathering activities were recorded. Among these, hunting of crocodiles occurs during the dry season, when water levels in streams are low and hunting is by day and very rarely at night. The habitat of the saltwater crocodiles on the island is predominantly within fresh water streams that course the valleys and lowlands of the west coast of Little Nicobar. The estuarine regions are small and most creeks are stanchied at the mouth. The islanders visit these creeks and streams to collect thatch and betel nut, from groves along stream banks and occasionally timber, fish and crabs. These occasions also provide an opportunity to check for any signs of crocodiles in these regions. The actual croc hunt is done on foot, by checking deep pools and following faint croc trails in shallow waters. The animal is harpooned after it is located by prodding a long stick under the water. Though crocs are considered dangerous they are not just killed to mitigate that danger, but rather as a food resource in appropriate seasons.

Specific hunts for crocodiles are rare except amongst specialist crocodile hunters. Most often a hunt in the forest could bring in various forms of food, such as wild boar, beetle larvae, pigeons, monitor lizards, megapodes, roots or nothing at all. The creeks that are commonly used to hunt crocodiles are the Rireyeh, Rahaoh, Re annui, Repeking, Recheh, the Laon loreyeh, Komat and Rapah (Fig:1). Crocodile hunters do not frequently visit the last three creeks as they are far from their hamlets, unless they are informed of a problematic animal that attacks dogs or people. Resident crocs are left alone. Croc nesting areas are seen during a regular hunts, but on no occasion are eggs taken away. Most creeks along the west coast have breeding populations of crocodiles, whereas the smaller creeks along the east coast are occasionally used by small crocs or by larger ones in transit between habitats and islands.

¹ 'Crocodile & Man'. The word 'Payuh' is also used to mean a native person of Little Nicobar island. It is used more commonly in the singular to mean 'man'.

² Approximately 3 nautical miles to the south; the central Nicobar group of islands are approximately 35 nautical miles to the north. The area & population on the islands (1991 census) are -Little Nicobar -159 sq.km, 308; Kondul -4.7 sq km, 147; Pulumilo -1.29 sq km, 122.

FIGURE: 1

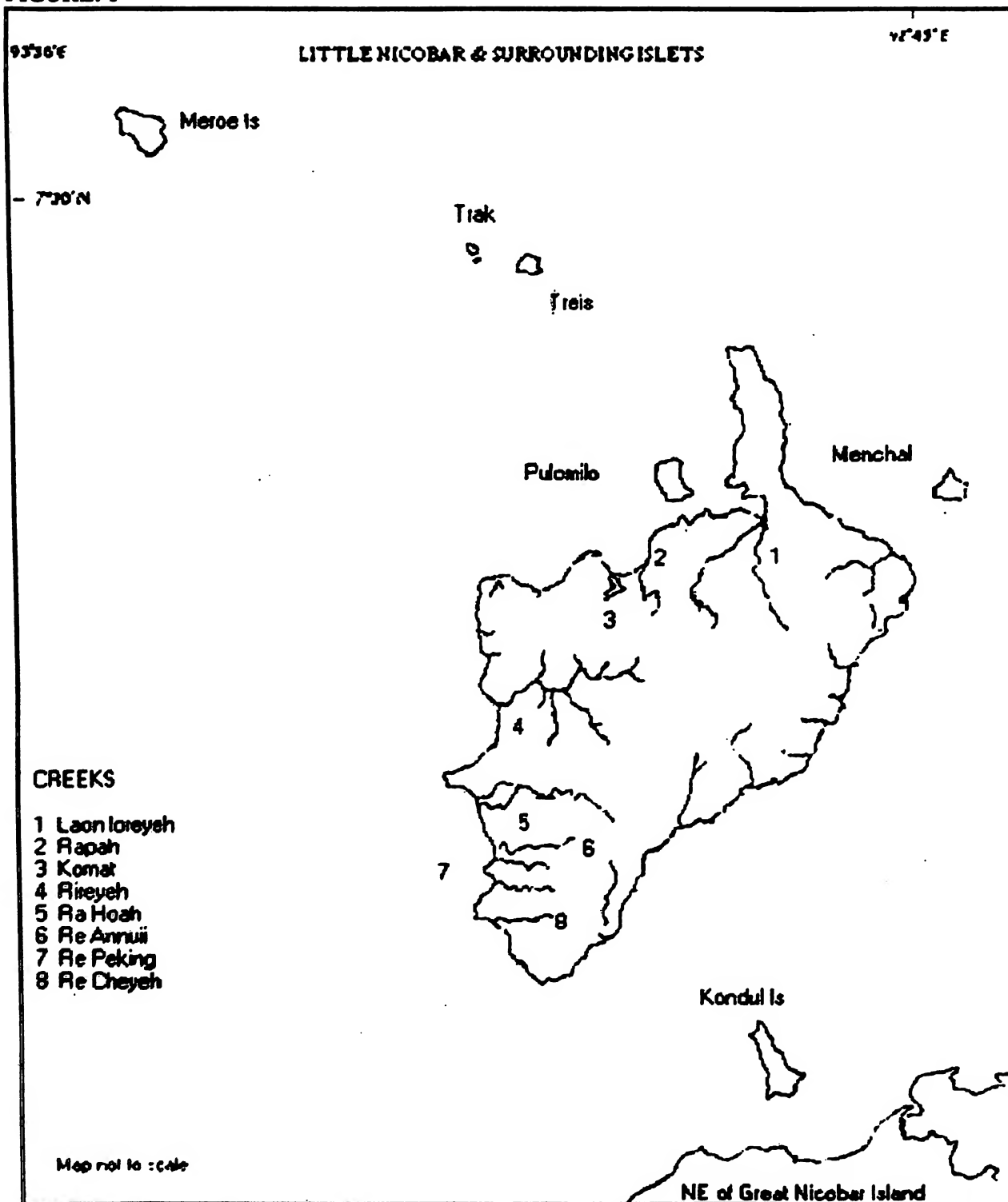


Table: 1

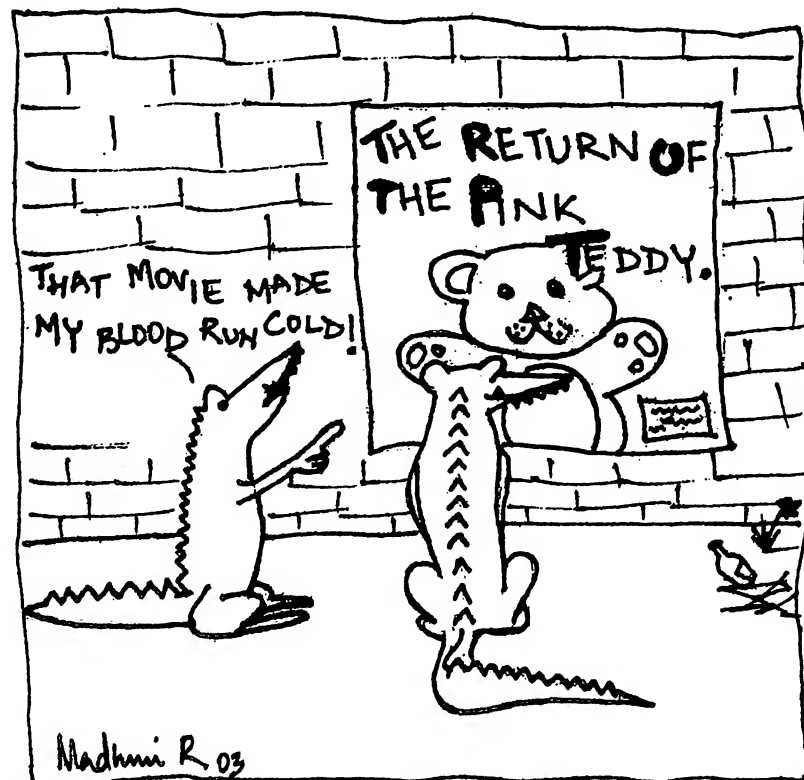
DATE	INDIRECT	*SIGHTED	*HUNTED	SIZE CLASS	AREA
24/01/03			2	1.5m, & >2.5m	Ra Haoh
26/01/03	1-track at creek mouth	1- eye shine	1	>1m Hatchling	Re Cheyeh
02/02/03		2- Large adults	2	1.5m >30 cms	Repeking & Re annuii
04/02/03		1-eye shine	1	Hatchling	Re annuii
07/02/03	1-large track & 1-slide mark				Ra Haoh & Re annuii
10/02/03		1		>2m	Ra Haoh
12 th & 13/02/03	Several claw marks on separate banks & 2 slide marks at different basking spots	2- small	1- female with eggs	<1m, 2.5m	Rireyeh & Komat stream head.
16/02/03	Track of a large crocodile on the beach entering creek from the sea, with right rear foot missing.				Re annuii
16/02/03		1-eye shine	1	>1m	Rireyeh
17/02/03		1- swimming offshore trying to enter creek, disturbed by our presence		>5m	Off Tauhiyol / Muhincohn village
19/02/03	Old track of a large crocodile seen on stream bank				Ra Haoh
25/02/03	Fresh slushy track seen between 2 streams in the forest (a), many claw marks on steep banks (b),	1- juvenile crocodile in a deep pool.		(a) width of track >50 cms (b) unknown (c) <1m	Rireyeh
26/02/03		2- eye shine's seen	2	Both hunted > 2m. 1-eyeshine was from a juvenile crocodile <1m.	Rireyeh
03/03/03		1- crocodile seen while collecting forest produce		Adult!	Ra Haoh

*Sighting of a crocodile and the number hunted are different entries. The tracks and slide marks are not counted and is considered as indirect evidences of croc presence.

The interaction between the people and crocodiles seems positive and healthy. As the hunting of crocs occurs only in a few creeks during the dry season by a few seasoned hunters, the populations of salties in the creeks do not seem to be adversely affected. In other areas where humans and crocodiles live together the interactions revolve around 'problem animals' or over-exploitation of the species. This is not the case on Little Nicobar Island as understood from these preliminary investigations. The islanders have, for generations, been able to sustain their traditional activities by living alongside breeding populations of crocodiles and carefully utilizing the meat as a food source. This is not to say that the entire island population of Little Nicobar subsists on crocodile meat during the dry season. Those who live in areas adjacent to crocodile habitats, while making use of the animal as a food source, have not overexploited the animal nor have they altered its habitat. The presence of many hatchlings, juvenile and adult crocodiles observed both during 2001 and in 2002 are indicative of healthy populations. Crocs were observed at various points along creeks, at sea, inside freshwater streams and in nesting habitats upstream. These observations are shown in table 1.

The habitat for the species varies from the estuarine regions vegetated by sparse mangrove to upstream fresh water ecosystems including flowing streams, deep pools, marshlands and brooks between hilly regions. The nesting areas are vegetated by ferns, tall grasses, creepers and other small shrubs in open areas along streams and marshes. Though fish and other marine life would constitute a large portion of the diet of these crocodiles, the stomach contents of two that were captured by the islanders for a meal were examined to reveal the remnants of a white-breasted water hen, and wild pig hooves. Croc tracks seen during frequent forays into the forest along streams suggest that pig wallows along the stream are regularly checked by salties for a possible meal.

A crucial point that I would like to emphasize is that despite worldwide concern over conservation of endangered species, in some cases people have learnt to tolerate and live with such species while making use of them as a resource. Crocodiles apart, there are many other species that are used and exploited by these islanders as living resources. Those species and resources that are commercially exploited for trade in other areas are invariably in short supply and in need of management interventions. With the present mode of use of crocodiles as a food resource in Little Nicobar Island, the equation seems to favor both man and animal.



ISLAND HOPPING IN SEARCH OF HERPS IN THE NICOBARS

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The Nicobar islands, a group of 24 islands, is considered to be the continuation of the Mentawai archipelago to the south and south west of Sumatra. It is of volcanic origin with coral reefs contributing to the upheaval of the banks. One obvious thing is that, geological events in the past have resulted in the 24 fragments of landmass forming three clusters: North (Car Nicobar, Battimalv), Central (Nancowry, Camorta, Trinkat, Katchall, Chowra, Bompoka and Teressa) and the southern cluster includes Great Nicobar (from the south), Little Nicobar and the surrounding islands and islets.

Understanding how many species of amphibians and reptiles occur in these islands, how they are distributed, what the difference is in species composition within and between the above three island clusters, what the conservation status of the species is, and if the current protected area network is adequate for these groups of animals, are some of the questions I am addressing during the first phase of the project on the "Ecology and conservation of the amphibians and reptiles of the Nicobar Islands", supported by the Centre for Herpetology, Madras Crocodile Bank Trust. The past five months (Dec 2002 to April 2003) of island hopping and sampling in the Central Nicobars have resulted in five species of frogs and toads, more than ten species of lizards and a number of snake species, whose identities need to be worked out.

Although these islands have been a target of many zoological expeditions in the past, major gaps in the data on distribution still persist. One of the main aims of this study has been to plug the gaps in the existing data. Before I started sampling the Central Nicobars, only a dozen species of frogs, lizards and snakes have been reported from a couple of islands. The ongoing study has doubled the past figures along with extensive data on species distribution. Central Nicobars has some of the most spectacular landscapes, unique among them being the forest patches in the grassland matrix. This resembles the high altitude montane shola forests of the Western Ghats. The grassland is dotted at many places with a Nicobar species of pandanus trees, reminding one of the paintings of the prehistoric landscapes. In the coming months I have planned to cross the Sombrero Channel to sample the southern group of Nicobars, which includes Great Nicobar Island, the largest and probably the most diverse in the archipelago.

A TORTOISE TALE

Madhuri Ramesh

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Tamil Nadu, S. India*

The Kadars are a tribe inhabiting the forests of the southern Western Ghats, in Kerala and Tamil Nadu. The following story is typical of the folklore of the Kadars—it is largely fanciful, full of talking creatures, but at the same time woven around careful observation of nature.

Many, many years ago, when their ancestors were still alive, Kadavul (God) had decided to get married, and invited all the creatures of the forest to his wedding. In those days, animals were like people, they could speak; they were all excited and were planning to attend the wedding. Only the poor Travancore tortoise did not know what to do, for it walked very slowly, and by the time it reached, the wedding was sure to be over.

So, it went to the Ongal (the Great Pied Hornbill) and said "I am a very slow creature, whereas you are fast, so will you please take me with you to Kadavul's wedding?"

The Ongal felt sorry for the tortoise and agreed to help. It said, "Alright, I'll take you, just bite my tail and hold onto it. Then as I fly, I will carry you along. But remember, you should not on any account laugh or talk."

The tortoise did as it was told, and held on to the Ongal's tail with its mouth; and as the Ongal flew, the tortoise was carried up into the air. They flew over the forest. Down below, all the other animals saw them. They were very surprised to see the tortoise up in the sky, and as they called each other to see this sight, the tortoise began to laugh. It then lost its grip on the Ongal's tail and fell down, shattering to pieces when it hit the ground.

When Kadavul heard about this accident, he felt bad because after all, the tortoise had been on its way to his wedding, and he decided to heal it. So he gathered all the pieces, and stitched them up together with a needle and thread, which is why its body is made up of so many different pieces. And you can still see the stitches (what we call the 'sutures') that hold it together.

WHAT'S HERPENING IN UP, V 2?

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Unlike the northeast or the Western Ghats, where an enviable diversity of herpeto-fauna is found, the herp-lover in Uttar Pradesh (UP) has to make do with a much less varied assemblage of snakes and lizards. The state is rich in fresh water turtles and 42 % of India's turtle species occur here. However its only tortoise, the Elongated or Sal-forest tortoise that is found in the famous Corbett National Park, passed outside its political boundaries when the hill state of Uttaranchal was carved out of it more than a year ago! Traditionally, famous herpetologists like Smith, Boulenger and Wall neglected this region in their studies, probably because they found it more worthwhile to concentrate their efforts on the rich areas of the north-east and south-west of India.

With a climate that is predominantly dry for nine months of the year and a pretty cold winter, squamate reptiles are not too many in number but several large rivers flow through Uttar Pradesh, which has the most extensive natural habitat of the charismatic gharial. When conservation of the gharial began in the 1970s, one of the two last surviving breeding populations of this species survived here. The state had a major role to play in preventing the extinction of this unique crocodilian, which it fulfilled with striking success. The release into rivers of nearly four thousand gharials that had been hatched and reared in the state's two gharial rehabilitation centres, enabled critically endangered populations of gharial to recover to safe levels. The operation was hailed as one of the world's great conservation successes.

However, in our crowded country where increasing human pressures on habitat is the bane of all wildlife, the dramatic comeback of gharial was restricted to only two rivers, the Chambal and the Geruwa. The government declared both of these as sanctuaries and effectively banned fishing in them. After the initial increase of gharial numbers, time is beginning to reveal that the future of this unique crocodilian is far from secure, even in these two areas, both of which suffer from their unique problems. In the Geruwa, only the 18 km of river within the Katarniaghat sanctuary is protected and of this river length, just 6 to 8 km are prime gharial habitat. Trends observed over the last twenty-five years suggest that the present population of 35-40 adults is all that this limited habitat can support. The recruitment of juveniles is almost negligible and these disperse downstream into the Ghagra River, where they are invariably killed in fishing-net accidents as some surveys have shown. Therefore, without replacement, the population was estimated to be susceptible to extinction within a period of 40 to 80 years at the Population and Habitat Viability Analysis (PHVA) Workshop held for gharial at Gwalior in 1996. The Chambal River had seemed a safe and viable haven for the species for all these years, but there the programme suffers from stagnancy.

In today's fast changing conditions any programme that does not have resilience built into it to withstand external threats and pressures is probably doomed to failure. The approximately 400 km of the Chambal river protected as the tri-state National Chambal Sanctuary represent considerable resources of water, fish and high grade construction sand. The increasing demand for these resources will become harder to resist unless conservation of the sanctuary's biodiversity becomes consonant in some way or the other with regional and local aspirations.

In the years between 1987 and 1994, there was another interesting development on the herpetological scene in U.P. The mega-project to rid the Ganges River of pollution saw the initiation of a large programme to rehabilitate the depleted populations of soft-shelled turtles in this river system. Trionychid turtles are markedly carnivorous and it was thought that they would prove to be efficient scavengers of partly cremated corpses and the carcasses of domestic animals that pollute the Ganges. Through the tenure of the project, the forest department collected some 96000 eggs, mostly of *Aspideretes gangeticus*, from the National Chambal Sanctuary representing some five and a half thousand nests. Thirty-nine thousand juvenile turtles were hatched from these eggs and reared for two to three years at two turtle rearing centres, that were established in the state, before being released into the Ganges at Varanasi. The Ganga Project Directorate (GPD) of the Ministry of Environment and Forests, GOI that had funded the project, asked the Wildlife Institute of India to evaluate its impact on the Ganges River.

Some 50 turtles were captured by hooking over a two-month period in 1995. Only two could be definitively identified as turtles that had been reared in captivity under the programme. These results were interpreted as indicative of failure of the rehabilitation programme. Although the programme was commended by a special resolution of the Soptom World Turtle Congress in France that asked other Asian countries to emulate it, it came to an end after the GPD stopped its funding. One of the misgivings of the Directorate was that the UPFD had contributed little by way of research on turtles and their impact on river conservation. This was not completely justified either, because such a large-scale operation was hardly possible without required investigation into the reproductive biology of the Gangetic soft-shell turtle, although these were not written up or published.

Recent herpetological research in U P has never been a very big deal although the Forest Department/ FAO-UNDP Gharial Project did produce two doctoral theses and a handful of papers on the biology and ecology of the gharial. The Aligarh Muslim University also has been sporadically involved with research on turtles. The Madras Croc Bank Trust and Dr. Jeffery Lang of the University of North Dakota encouraged and collaborated with the UPFD in studies of crocodilian and chelonian egg incubation, both under laboratory and field conditions. The Kukrail Gharial Rehabilitation Centre near Lucknow was one of the two establishments in the country to successfully breed the gharial in captivity and over one breeding season I did a detailed study of the gharial's courtship behavior in its captive breeding enclosure, which still presents a great locale for studying the behavior of this unique crocodilian. The Centre also has a good record of breeding turtles in captivity and is the only establishment in the country to have bred the spotted pond turtle *Geoclemys hamiltonii*. A few studies on the reproductive biology of turtles that were conducted here resulted in publications in the *Hamadryad*.

Apart from the reproduction of turtles and crocodilians certain aspects of reptile distribution in UP still pose some interesting questions for research. During the last quarter of a century, the ranges of several snakes like *Lycodon jara*, *Chrysopelea ornata*, *Dendrelaphis pictus* and *Python molurus bivittatus* and chelonians like *Indotestudo elongata*, *Morenia petersi*, *Melanochelys trijuga* and *M. tricarinata*, which were never properly thought to be residents of UP, were discovered deep inside west U. P. along the hot and moist *Terai* belt adjoining the international border with Nepal. There is every possibility that more such snakes are waiting to be discovered in protected areas of high biodiversity like the Katarniaghat Wildlife Sanctuary and the Dudhwa National Park. Moreover, if this is so, our knowledge of lizards of these areas is also probably inadequate.

Right now, mainstream preoccupations in UP lie far away from reproduction of crocs and turtles or the distribution of snakes and lizards. I myself was dejected when the Forest Department didn't take any initiative to celebrate the silver jubilee of the gharial project, which coincided with the millennium year. But at least, under the World Bank aided UP Forestry Project, an evaluation of gharial rehabilitation was one of the topics selected to be investigated through contract biodiversity research. This was just as well because its findings oppose the recent UPFD move to close down the well-known Kukrail Gharial Centre. This move has also recently received critical and frequent media attention and perhaps the department will be persuaded to change its mind.

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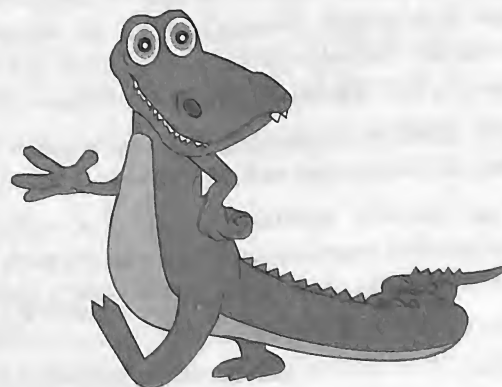
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The CSG has received and accepted an invitation from Wildlife Management international, the Rural Industries Research and Development Corporation and the Northern Territory Government to hold the next Working Meeting of the Crocodile Specialist group in May 2004 in Darwin, Northern Territory, Australia. To receive information about this meeting as it is generated, please send your e-mail contact direct to Tom Dacey at Tom.Dacey@epa.qld.gov.au

Full details of the meeting-registration, paper submission, accommodations, field trips, etc-will be announced through the CSG Newsletter, website and sent by e-mail to interested participants.

The Crocodile Specialist Group is a worldwide network of biologists, wildlife managers, government officials, independent researchers, NGO representatives, farmers, traders, tanners, fashion leaders, and private companies actively involved in the conservation of the world's 23 living species of alligators, crocodiles, caimans and gharials in the wild.

For more information about The Crocodile Specialist Group (CSG) go to the CSG website at:

<http://www.flmnh.ufl.edu/natsci/herpetology/Crocs.htm>

Croc Bank goes to Town

NatureQuest, an activity-based, nature and conservation awareness programme for teachers, students and nature-enthusiasts, was launched on 14th June 2003. It is a collaborative effort of the Madras Crocodile Bank Trust (MCBT), Orient Longman Pvt. Ltd. (OL) and Trust for Environmental Education (TREE).

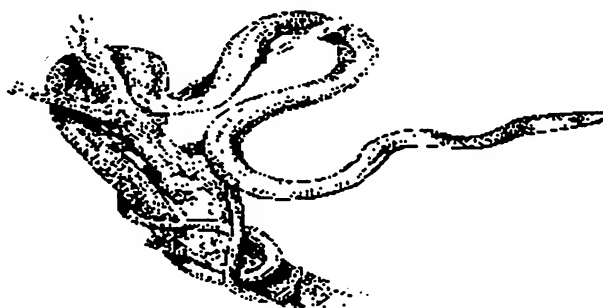
The aim of **NatureQuest** is to conduct a series of activities at The Bookpoint auditorium, 160 Anna Salai, Chennai, TN. A variety of interactive programmes integrating wildlife and nature with arts and crafts, music and theatre will be conducted. Talks, discussions and screening of slide, video & film shows will be organised. Resource persons include wildlife filmmakers, researchers & photographers, artists, musicians and theatre artistes. A small resource centre for children at The Bookpoint auditorium is being planned.

As part of Madras Croc Bank's on-going Environmental Education Programme, the **Friends of the Croc Bank Club** has been started. Members of this Club will be contributing to Croc Bank's conservation efforts. Members will also be entitled to free entry into Madras Crocodile Bank, a t-shirt, stickers, an ID card, free subscriptions to Croc Bank newsletters, free entry to some of the activities and programmes of **NatureQuest** and discounts on camps and programmes conducted at the Croc Bank.

To find out more about **Nature Quest** and **Friends of the Croc Bank Club** contact mcbtindia@vsnl.net.

HERPINSTANCE

THE NEWSLETTER OF THE MADRAS CROCODILE BANK TRUST



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